

 **KENWOOD**

KX-2060

STEREO CASSETTE DECK WITH DOLBY* NR



Every advanced design feature of the KX-2060 is designed to provide you with the highest quality in cassette tape recordings.

- Metal tape capability
- Fine-bias tuning
- 3-head design
- Frequency response to 19,000Hz
- S/N ratio 70dB (Dolby* metal)
- Wow-and-flutter 0.04% (WRMS)

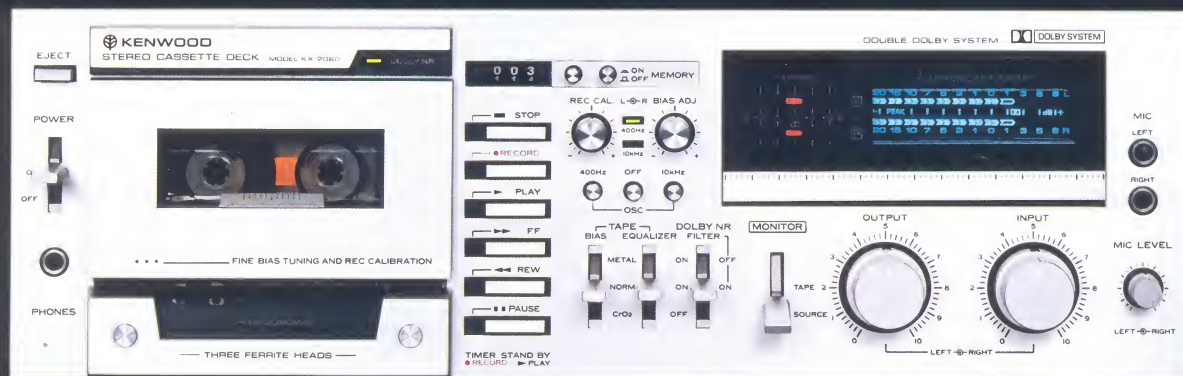
Kenwood engineers have again advanced the art of cassette deck design with the remarkable KX-2060, a superbly engineered deck with performance characteristics equal to the best available today.

The KX-2060 incorporates many advanced design features such as the ability to record and playback every kind of tape—including the latest high-output metal tape. A three-position tape equalization selector and a variable fine-bias adjuster using two oscillators, plus calibratable double Dolby* noise reduction circuitry, ensure that every tape will perform to its limits. Moreover, the 3-head design offers important advantages both in optimum sound quality and

monitoring convenience.

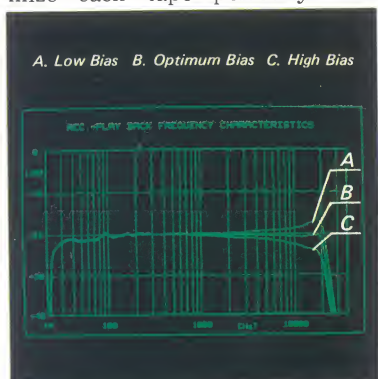
The extraordinary electro-magnetic performance of the KX-2060 is fully complemented by mechanical excellence. A new constant tension tape transport, and Kenwood's own rugged two-belt drive system, all ensure that nothing stands in the way of the highest quality recording and playback of tapes.

The KX-2060 is also very easy to operate, and features electronic push-button controls and advanced fluorescent peak level meters. Its carefully laid out front panel is designed to match equivalent Kenwood amplifiers and tuners.



Variable Fine Bias Tuning Using Oscillators

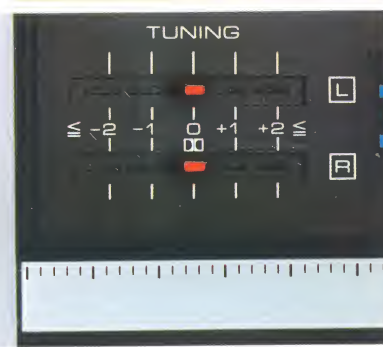
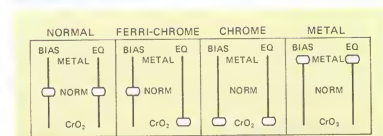
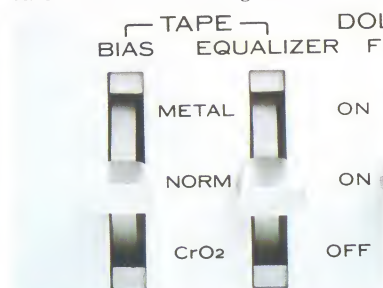
Adding a bias current to the tape while recording "tunes" each tape to its optimum frequency response. But, because each kind of tape (and even each individual tape) varies in its characteristic, different bias current values are necessary. Only a continuously variable fine bias control can optimize each tape perfectly. The



Fine-bias adjustment optimizes the characteristics of each individual tape.



KX-2060 is therefore provided with a fine-bias control utilizing twin oscillator tones and an LED "tuning" scale. By using the 400 Hz tone for recording calibration and the 10 kHz tone for bias adjustment (a simple operation explained in detail in the owner's manual), the best recording results can be obtained for each tape. The LED chains are lit by a special Schmidt circuit to accurately indicate correct recording calibration.



Highly Stable Tape Transport With Unique Constant-Tension Tape Control

Not only electrically but also mechanically, the KX-2060 is a superb cassette deck that is capable of providing tape quality similar to that of open-reel. A weak point in many cassette decks is the variation in tape tension due to the highly sensitive nature of the tiny drive system. This fluctuation

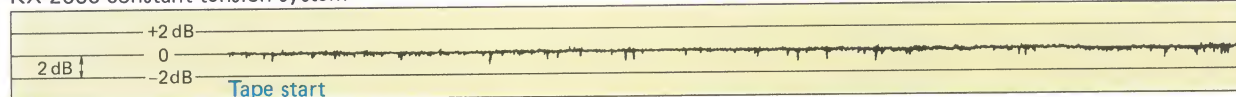


Kenwood's double back tension system maintains constant tape tension at all times.

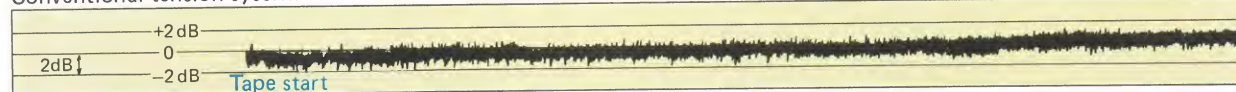
in tension not only creates wow-and flutter, but also influences the electro-magnetic conversion process between head and tape. Therefore, stable and uniform tape tension is essential in a deck of the KX-2060's quality. Kenwood's engineers have thus devised a unique double back tension system controlled by a fluctuation detector that maintains constant tape tension from start to finish. The KX-2060 drive system employs Kenwood's two-belt drive system that uses one belt for the main drive and another for the take-up reel, with important benefits in reduced wow-and flutter.

Recording And Playback Level Fluctuation Comparison Using A 10 kHz Input

KX-2060 constant tension system



Conventional tension system



Top graph shows how the KX-2060 output signal is uniform from start to finish of the tape play, compared with an ordinary deck.

Double Dolby Noise Reduction System With Calibration

With double Dolby circuits for recording and playback, the 3-head design allows the user to monitor Dolby-encoded signals as they are recorded. However, the Dolby system incorporated in the KX-2060 offers a further benefit. Tapes vary not only in their bias current values (as mentioned above) but also in sensitivity, affecting the frequency response. While conventional Dolby systems are factory-calibrated to a standard tape, the KX-2060 incorporates a Dolby calibration system to match input and output characteristics with the sensitivity of each tape. This results in perfect recordings with the Dolby system.

Fluorescent Peak Level Meters

Ordinary VU meters do not respond fast enough to peak signals, and the KX-2060 is therefore equipped with fast and efficient peak-reading fluorescent level meters. Their fast response of 10 milliseconds gives accurate information on every musical peak.

More Highlights Of The KX-2060

- Improved electronics with ICL FET equalizer circuit
Uses an advanced FET differential circuit with plus and minus power supplies and without a coupling capacitor, for improved S/N performance and low distortion.
- Light-touch electronic push-button controls



Designed with instant response to finger pressure for supreme ease of operation. There is no effort needed, and no mechanical stiffness.

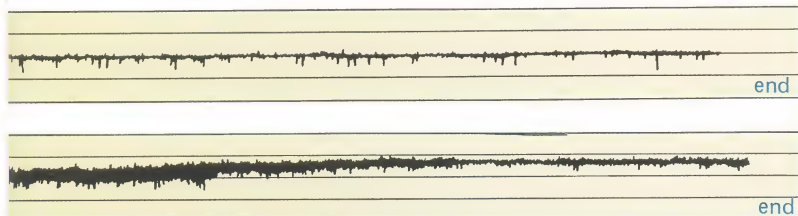
- Line and microphone mixing
Separate level controls for line and mic inputs allow both to be mixed in recording.
- Memory Index
A detection and retrieval system that returns to "000" after recording, or finds a portion of the tape for replay.

▶ MEMORY INDEX

- Timer stand-by
For instant recording direct from the Pause mode when the Power

switch is activated. Or to record broadcasts while you are away, using a timer such as the Kenwood AT-70.

- MPX filter switch
Removes "beat" distortion when recording FM stereo broadcasts.
- Output volume level control
Matches the volume level to that of other sources, and controls headphone volume level.
- Remaining tape illumination
- LED indicators for Record, Peak Level and Dolby NR



3 HEAD SYSTEM

3-Head Design Provides Ideal Gap Widths For Recording And Playback

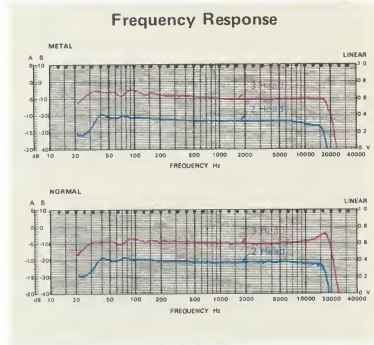
Professional tape decks always separate the functions of recording and playback to obtain high quality sound, because each requires a different head gap width. The KX-2060 also features a 3-head design in a special dual-combination format that places the record and playback heads close together in the same housing. With its narrow, 1-micron gap width, the playback head is able to provide an extended frequency response (to 19 kHz with metal tape) and wider dynamic range. On the other hand, the 5-micron recording head gap width provides the strong magnetic saturation

one central opening for a single record/playback head. When entirely separate heads are used, one of them must function from an opening designed for another purpose, with the possible result of degraded signal-to-noise performance, poor head contact and spacing loss. The Kenwood dual-combination head format is therefore ideal, since both heads function in the central opening of the cassette. Another benefit of the dual-combination design is that the heads never go out of alignment (even the slightest misalignment can cause severe degradation of sound) because they are precisely fixed in the single housing.

Simultaneous Monitoring



Professional monitoring of recordings is yet another advantage of the 3-head design. By using the tape monitor, recordings can be checked for quality as they are being made. Moreover, precise recording levels can also be obtained



Separate recording and playback heads with ideal gap widths provide high quality sound from cassette tapes.

that is especially necessary for imprinting signals onto metal tape with its higher coercive force. A higher saturation threshold is one important benefit of this design, resulting in more output.

The Kenwood Dual-Combination 3-Head Design: Correct Head Position And Alignment

Unlike open-reel decks, cassette deck head positioning is limited by the standardized cassette format, originally designed with

Metal Tape Capability For High Quality Recordings

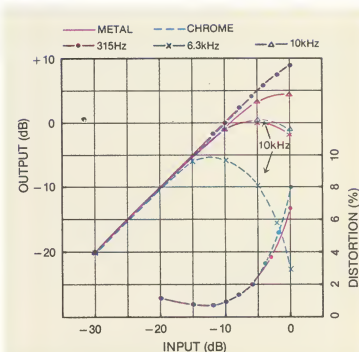
The electronics and magnetic heads of the KX-2060 are designed to accommodate every kind of tape on the market, including the most advanced type, metal



A special ferrite material with excellent high frequency characteristic and permeability is used for the two heads in the Kenwood dual-combination head design.

tape. Metal tape's main advantages are in its greater magnetic properties called "coercivity", "remanence" and "retentivity", which increase the maximum output level (MOL) over the entire frequency range. Moreover, its greater "coercivity" significantly reduces the phenomenon of recording loss. This is the self-erasure suffered by conventional tape when flux from the previously recorded magnetic pattern causes partial erasure of the newly recorded signal. This is why the ferrite recording head with its wide gap is important, since the higher coercivity of metal tape requires a much stronger magnetic field to imprint signals. Reduced distortion, too, leads to more recording headroom, and there is a further improvement in total dynamic range. Now cassette recordings can provide the tonal quality that was exclusive to open-reel tape.

Metal Tape



Metal tape capability of the KX-2060 provides the highest quality in cassette recordings.

KX-2060

SPECIFICATIONS

Type	Front Loading Stereo Cassette Deck with Dolby System
Track System	4-Track 2-Channel Stereo/Mono Record/Playback
Recording System	AC Bias (Bias Frequency: 105 kHz)
Erasing System	AC
Tape Speed	4.76 cm/sec. (1-7/8 ips)
Heads	Three Ferrite Heads Record/Playback Combination Head x 1 Erasing Head x 1
Motor	Electronically Controlled DC Motor
Fast Winding Time	Approx 80 seconds with C-60 tape
Frequency Response	
Normal Tape	20 Hz to 18,000 Hz (25 Hz to 17,500 Hz, ± 3 dB)
CrO ₂ Tape	20 Hz to 19,000 Hz (25 Hz to 18,000 Hz, ± 3 dB)
Metal Tape	20 Hz to 19,000 Hz (25 Hz to 18,000 Hz, ± 3 dB)
Signal to Noise Ratio	
Dolby ON (Over 5 kHz)	66 dB (Normal Tape), 69 dB (CrO ₂), 70 dB (Metal)
Dolby OFF	56 dB (Normal Tape), 59 dB (CrO ₂), 60 dB (Metal)
Harmonic Distortion	Less than 1.0% (at 1 kHz, 0VU with Metal Tape)
Wow & Flutter	0.04% (WRMS)
Input Sensitivity/Impedance	
Line x 2	77.5 mV/50 kohms
DIN x 1	0.1 mV/ kohms Europe, Scandinavia & U.K. models 1.4 mV/10 kohms Other countries
Microphones x 2	0.19 mV/56 kohms



Optional carrying handles (D-80) are also available.

Output Level/Load Impedance	
Line x 2	775 mV (0VU)/100 kohms
DIN x 1	775 mV (0VU)/100 kohms
Headphones	48.9 mV/8 ohms
Additional Features	Double Dolby Noise Reduction System with LED Indicator, Three-Position Bias Selector (Normal) Chrome-Metal), Three-Position Equalization Selector (Normal-Chrome-Metal), All-Electronic Fluorescent Display Level Meter (-20 dB to +8 dB), Fine Bias Adjustment Control with Oscillators (400 Hz, 10 kHz) and Indicators, Dolby Recording Calibration with Oscillator, Full Auto Shut-off Mechanism in all Modes, Tape Monitor and Line/Mic Mixing Functions, Memory Index, LED Recording Indicator, MPX Filter, Remaining Tape Illumination, Timer Stand-by Mechanism, Three-Digit Tape Counter, Two Microphone Jacks, Headphone Jack, DIN Rec/Playback Connector
Power Requirements	AC 120V, 60 Hz U.S.A. & Canada Model AC 120/220-240V (Switchable), 50/60 Hz Other Countries
Power Consumption	40 watts
Dimensions	W 440 mm (17-5/16 inch) H 153 mm (6 inch) D 377 mm (14-7/8 inch)
Weight	9.3 kg (20.5 lbs)
Supplied Accessories	Stereo Connection Cords Head Cleaning Set
Reference Tape	Normal: MAXELL XLI C-60 Chrome: TDK SA C-60 Metal: TDK MA-R C-60

KENWOOD follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

* Trade mark of Dolby Laboratories

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